Review of Wisconsin Proposed Atmospheric Mercury Regulation

Report by the Citizens Advisory Committee

September 23, 2002

Mercury Citizen Advisory Committee

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Forward

In response to a citizen petition the Department of Natural Resources drafted administrative rules to reduce air emissions of mercury from major sources in the state. At the June 2001 Natural Resources Board meeting when public hearings were authorized on proposed rules, Secretary Darrell Bazzell requested that the Bureau of Air Management establish a Mercury Citizen Advisory Committee to review public comments received at hearing and make recommendations for addressing significant areas of concern and controversy. The Committee that was established included stakeholders representing environmental, industrial, utility, and tribal interests. This report represents the Committee's review of critical issues and includes discussion of possible alternatives to address those critical issues. In addition to the Committee, a Mercury Technical Advisory Group was established at the Secretary's request to evaluate technical merits of the proposed rules.

Secretary Bazzell requested that the Committee attempt to accomplish the following:

- Review public comments and identify key issues for further evaluation.
- Consider the advice provided by the Technical Advisory Group and direct their efforts.
- Develop options analyses of key issues.
- Consider the Governor's energy policy and related state legislative proposals, such as mercury product bans, in the evaluation of key issues.

The Committee discussed a wide variety of general topics including benefits, costs, and state-federal issues. Stakeholder perspectives are provided on benefits in Section III, costs in Section IV, and state-federal issues in Section V. In addition, the Committee identified eight issues of significant concern with the proposed mercury reduction rules for further evaluation. These issues are listed below and discussed further in Section VI.

- How should a mercury emission baseline be established for utility units or other mercury emitting sources that may be affected by requirements to cap and reduce mercury emissions?
- What is the relationship between a Wisconsin regulation and pending federal regulations that will require mercury emission reductions from electric utility boilers and industrial boilers?
- What should the frequency and content of the rule evaluation reports to the Natural Resources Board be?
- Are the variance procedures adequate to safeguard electric reliability?
- Should major industrial sources have requirements in the proposed rules that place a cap on their annual mercury emissions?
- How should growth in mercury emissions be addressed in the proposed rules?
- The schedule and stringency of mercury emission reductions required of the four major electric utilities.

- Should compliance with the proposed mercury rules include provision for emission reduction credits created from mercury product collection projects or pollution reduction projects?

The discussion by Committee members of these issues proved to be useful in the development of possible alternatives to components of the rules although consensus was not reached on final recommendations. The different stakeholder perspectives that are included in this report show that there are indeed many and sometimes vastly differing ways of looking at the problem of atmospheric mercury and the extent state rules will reduce mercury deposition to the state and its waterways.

This report includes the Committee's discussion of possible alternatives related to these issues as well as Committee member perspectives on topics they felt were important considerations in the development of state rules including expected benefits, expected costs and the need for state action to address mercury air emissions. The report's discussion of issues, identification of possible alternatives, and differing stakeholder perspectives are intended to be useful to the Secretary and staff as final rules are prepared for the consideration and adoption by the Natural Resources Board.

I. Introduction

The Department of Natural Resources is proposing administrative rules under s. 285.11(9), Wis. Stats, to reduce mercury emissions to the air from major electric utilities, cap mercury air emissions from other major stationary sources, and require offsets of mercury emissions from new or modified stationary sources. The rules were drafted in response to a citizen petition *(see Appendix A – Citizen Petition for Rules)* that requested administrative rules to achieve mercury emission reductions to address the problem of mercury contamination of fish in Wisconsin's waters. These rules would be within Chapter NR 446 Wis. Adm. Code. A Citizen Advisory Committee and a Technical Advisory Group were established to evaluate public comments and provide input to the Department on the proposed rules. This report represents the work of the Citizen Advisory Committee in identifying issues of concern associated with the proposed rules and exploring possible alternatives.

Background

On May 18, 2000, a petition was submitted to the Department of Natural Resources and Natural Resources Board to adopt administrative rules under s. 285.11(9), Wis. Stats., requiring reductions in mercury emissions from the largest known sources of emissions. The petition was signed by several members of the legislature in addition to representatives of environmental organizations, conservation groups, and sporting clubs. It requested the adoption of rules to control mercury deposition to Wisconsin's lakes and rivers because of the large number of fish consumption advisories. The main rule provision of the petition included a 90% reduction of mercury air emissions by the year 2015. Subsequently, on September 15, 2000, the Department received an amended petition that changed the main rule provision from 90% reduction in mercury air

emissions by the year 2015 to the same 90% reduction level by the year 2010. It also added to the number of petitioners. The state's major utilities responded to the petition by proposing a mercury reduction schedule of 10% over five years and 40% over 10 years.

At the Natural Resources Board meeting conducted on December 6, 2000, the Department presented a resolution requesting and receiving authority to draft rules to regulate atmospheric emissions of mercury *(see Appendix B – Natural Resources Board Resolution)*. The Board instructed the Department to return in March 2001 (subsequently postponed until June 2001) with proposed rules that protect public health and the environment, but are cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the state's energy needs.

Proposed rules to reduce mercury emissions were presented to the Natural Resources Board at their June 2001 meeting in Kenosha and approved for public hearing. In addition, the Board also directed Department staff to include several proposed mercury reduction alternatives in the public involvement process for the proposed rules *(see Appendix C – Alternatives to the Proposed Rules Offered at Public Hearing)*. During the last week of September and first week of October 2001, the Department conducted five public hearings throughout the state. In conjunction with the Natural Resources Board's action, the Secretary of the Department asked the Bureau of Air Management to form a Technical Advisory Group, and a Citizen Advisory Committee. These groups were to be provided an opportunity to review public comments and advise the Secretary of the Department on revisions to the proposed rules.

Purpose of the Report

This document fulfills a request by the Secretary of the Department of Natural Resources for a report from the Citizen Advisory Committee. The report represents the Committee's evaluation of public comments and discussion of alternative options for addressing significant areas of concern and controversy with the proposed mercury reduction rules. It is not intended to be a comprehensive assessment of all the scientific, technical, and policy issues related to mercury. The perspectives of the various stakeholders reflected in the report are not intended to be an exhaustive list of all perspectives on all issues. In addition, the accuracy of factual claims made in various stakeholder perspectives was not verified. The Secretary of the Department and staff are to use this report along with all public input to determine what revisions to the proposed rules may be appropriate.

Citizen Advisory Committee

The Citizen Advisory Committee was formed to evaluate public comments and advise the Secretary of the Department on revisions to the proposed mercury reduction rules. Its members (see inside cover of report) include key representatives from a broad range of perspectives involving industry, environmental organizations and clubs, tribes and citizen boards. Each person on the Committee served in his or her capacity as a professional that had an interest and stakeholder perspective regarding mercury issues.

Also included with the names of each Committee member, is the name of each member's employer or interest group. The listing of these organizations does not imply endorsement of this report. Listing of the organizations is to provide context for the report by illustrating the diversity of experience and philosophies involved in the creation of the report. It should be noted that the organizations recognized the importance of the report by essentially donating the time of each Committee member. The Committee began meeting in October 2001 and produced this report in its entirety.

The Committee did have opportunity to receive information on specific topics during the course of their meetings arranged at the request of Committee members. Materials from these presentations are included in the report appendix *(see Appendix D – Presentations to the Committee)*.

Technical Advisory Group

The Technical Advisory Group was formed to conduct a technical and scientific analysis of the proposed rule, and provide this information to the Secretary of the Department. The Advisory Group began meeting in August 2001 and is expected to produce a series of technical briefs that focus on the following issues:

- Available and developing mercury control technologies for electric utilities and other major sources in Wisconsin including rate of technology development, control effectiveness, and costs.
- Impact of mercury control on beneficial reuse of fly ash generated by major utilities.
- New source offset requirements and trading including anticipated emissions from new coal-fired plants and an evaluation of the potential to obtain emission credits from other major sources and a mercury- containing products reduction program.
- Baseline emission determination and compliance monitoring methods.
- Implications of a cap on mercury emissions for industrial sources.
- Interaction with potential federal utility and industrial mercury reduction requirements.
- Assessment of environmental benefits resulting from rule implementation.

Drafts of work products were periodically presented to the Citizens Advisory Committee although the technical and scientific analysis was not complete for the purpose of the Committee's report.

Rule Summary

As described in the draft Environmental Assessment, the proposed state rules would set limits on the emissions of mercury into the ambient air from major sources as a means of reducing atmospheric mercury deposition to Wisconsin's environment and ultimately,

mercury concentrations in fish and wildlife. As discussed in Section III, stakeholders have different perspectives regarding the expected environmental benefits to the state from limiting mercury emissions from state-only sources, especially in relation to reducing state fish consumption advisories.

The main provisions of the rules include baseline emissions, reduction requirements, emission offsets, compliance, banking and trading, variances, and evaluation reports.

Baseline Emissions – Within two years after promulgation of the rules, major electric utilities and other major stationary sources would be required to submit a report to the Department with an estimate of annual mercury emissions for each facility for the years 1998, 1999, and 2000. (Major electric utilities are defined as emitting 100 pounds or more of mercury per year and major stationary sources are defined as emitting 10 pounds or more of mercury per year). Within three years after promulgation of the rules, the Department would set baseline mercury emissions for major utilities and major stationary sources. Beginning in the year following written notification of baseline emissions, affected sources would not be allowed to exceed baseline mercury emissions.

Reduction Requirements – Major electric utilities would be required to achieve the following reductions in mercury emissions from baseline emissions by the following dates after promulgation.

- Five years – 30% reduction.
- Ten years – 50% reduction.
- Fifteen years – 90% reduction.

Emission Offsets – New and modified construction of major stationary sources would be required to obtain emission offsets at a ratio of 1.5 to 1.0 for potential mercury emissions.

Compliance – Sources would be allowed to achieve compliance using any combination of control technology, emissions trading, or securing emission reductions from unregulated sources. Major utilities would be subject to a limitation from obtaining more than 25% of required emission reductions from mercury-containing products or pollution reduction projects.

Banking and Trading – The Department would certify mercury emission reductions achieved through a pollution reduction project or mercury containing products reduction project. Certified emission reductions could be banked and traded to achieve compliance.

Variances – In consultation with the Public Service Commission, the Department would be allowed to grant variances to major electric utilities under certain conditions that include a threat in electric reliability, disruption of fuel supply, or other uncontrollable event.

Evaluation Reports – The Department would be required to prepare a rule assessment report to the Natural Resources Board on at least an 18 month basis from the promulgation date taking into consideration scientific and technological developments

which occur that affect the ability to control or reduce mercury emissions. The report would include an evaluation of the feasibility of achieving the reduction requirements and recommendations for corrective actions and revisions.

II. A State Regulation versus the Federal Utility MACT

In December 2000, USEPA made a decision to regulate mercury and other hazardous air emissions from coal and oil-fired electric utility plants. Under the Clean Air Act, USEPA's regulation will be a MACT (Maximum Available Control Technology) standard. The agency plans to propose regulations by December 2003 and issue final rules by December 2004. There are many different perspectives when looking at the question of why the state is proposing its mercury regulations at the same time that the USEPA is developing a MACT standard for electric utility plants. Some of these differing perspectives (environmental, utility, industrial, and tribal) are summarized below.

Environmental Stakeholders – Wisconsin needs a local solution to the problem of mercury deposition to the state's water bodies. Although the argument could be made that atmospheric mercury is a national and even a global problem that requires national and international efforts, there are no assurances that these efforts will ever occur. USEPA is required under court order to propose a MACT standard for coal-fired electric utility plants by December 2003. There are no guarantees that the MACT rule currently being developed will include the maximum level of reductions needed to address mercury deposition to Wisconsin water bodies and reduce the level of mercury in fish. Since most of the emitted mercury travels only a short distance before it deposits back to the earth's surface, it can be assumed that a 90% reduction of mercury emissions as proposed in the state's rule would have enormous benefits in reducing the amounts of mercury found in Wisconsin fish.

Industrial Stakeholders – Controlling local mercury emissions through state regulations alone will have little impact on fish advisories in Wisconsin. A significant majority of mercury deposition comes from national and international sources, traveling hundreds or thousands of miles in the atmosphere before being deposited to rivers or lakes. It is highly unlikely for control measures imposed only at the state level to impact mercury deposition to a level where fish advisories for mercury can be eliminated. Proceeding with state mercury regulations ahead of federal regulations will not result in significant environmental benefit while potentially imposing significant economic costs. Early state implementation is likely to result in inconsistencies between state and federal programs that could restrict economic growth and impose higher electric costs for Wisconsin companies compared to competitors in other states.

Utility Stakeholders – The generally understood purpose of the proposed state rules is to reduce the amount of mercury being deposited to Wisconsin's waterways and to reduce the number of fish consumption advisories. However, since mercury has an atmospheric lifetime on the order of one year (Schroeder and Munthe, 1998), and mercury deposition studies show that in-state deposition is dominated by regional, national, and global

emissions (1), the state-only rules need to be clear about the environmental benefits that will be accomplished. Arguments are being made that Wisconsin should take a leadership role and that state mercury regulations can influence and shape federal regulations. However, pending federal regulations will be dictated by specific Clean Air Act MACT requirements. Therefore, the timelines and reduction levels between state and federal requirements will likely not be consistent causing practical difficulties with control investments and compliance. For these reasons, the state's utilities have developed and endorsed a rule alternative that allows Wisconsin to take a leadership position yet balances the resulting energy and economic impacts.

(1) See reference under Section III: Expected Environmental, Health and Economic Benefits

Tribal Stakeholders – One tribal government (Forest County Potawatomi) and one intertribal organization (Great Lakes Indian Fish and Wildlife Commission) representing its members from an off-reservation perspective, served on the Citizen Advisory Committee. Therefore, the perspective provided here may not necessarily reflect the views of every tribe. However, it is clear that tribes are very concerned about mercury emissions. Reducing these emissions will result in substantial reductions in mercury levels in Wisconsin's surface waters and fish and can help protect traditional activities that depend on clean resources such as hunting and fishing, and cultural, religious, and medicinal practices. Given the immediacy of the mercury problem, Wisconsin should be a leader in requiring reductions from coal-fired utilities and other stationary sources. The federal utility MACT standards will not address some sources that Wisconsin can address by crafting its own rule. In addition, given the uncertainty of MACT standard promulgation and its mercury reduction requirements, it is imperative that Wisconsin initiate action now to reduce mercury emissions.

III. Expected Environmental, Health, and Economic Benefits

The mercury reduction rules package submitted to the Natural Resources Board includes an Environmental Assessment (EA) prepared by the Department of Natural Resources. The EA states that "The reduction of mercury air emissions in addition to emission caps and offsets is expected to have the effect of reducing atmospheric mercury deposition to Wisconsin's environment and ultimately, mercury concentrations in fish and wildlife." Generally, the EA acknowledges that there is some uncertainty regarding the environmental impacts of the proposed rules. This acknowledgment is based on the Department's belief that the science of mercury transport and deposition are not completely known at this time.

Similar to the different views presented in *Section II – A State Regulation versus the Federal Utility MACT*, there are different perspectives when considering the expected environmental, health, and economic benefits of the proposed state rules. Two of these perspectives are summarized below.

Environmental Stakeholders Perspective

There is promising news regarding mercury reductions because Mercury Cycling Models show a one to one correlation between reducing deposition and reducing mercury levels in fish.[1] Accordingly, Wisconsin's proposed mercury reduction rules have the potential to benefit human health, environment, tourism, and reduce associated cost impacts from mercury.

On the cutting edge of mercury research is the concept of the "mercury aging process." Studies show that very recent, "younger" mercury emissions that are deposited are far more likely to become methylated in a water-body and taken up in the food chain. "Older" mercury deposited from past anthropogenic sources and from natural sources such as volcanoes may be trapped in sediment and not available for conversion to methyl-mercury. Consequently, the health of humans and wildlife stands to gain from rapid reductions of current mercury emissions.

A recent study by Carl Watras of WDNR concluded that due to regional reductions in mercury emissions, mercury levels in fish at Little Rock Lake, Wisconsin, have decreased rapidly.[2] Some of the lakes that are individually listed as having dangerously high levels of mercury in particular fish species may experience a large enough reduction in deposition to cause the lake-specific advisory to be lifted. This could have positive economic benefits for the local communities that provide services (bait shops, resorts, restaurants, etc.) to people who use the high-mercury lakes.

A Wisconsin mercury rule will ensure the most rapid reductions in mercury that would be available for methylation and would subsequently accumulate in fish. Less mercury in fish means less health effects. A strong Wisconsin rule also will motivate other states, Congress and the Bush Administration to require strict national mercury regulations, which clearly will have public health benefits as well.

In recent history, the threshold of harm for mercury has fallen dramatically, meaning that documentation of harm to a child's mental and physical development has occurred with smaller and smaller doses of mercury. This is not surprising; a similar scenario occurred with another neurotoxic heavy metal, lead. Physicians who authored the book *In Harm's Way: Toxic Threats to Child Development* state that "recent studies suggest that, like lead, mercury may have no threshold below which adverse effects do not occur."[3]

The National Academy of Sciences/National Research Council estimated that 60,000 children are born in the United States each year that may suffer from brain damage and learning disabilities because of their mothers' consumption of mercury-tainted fish during pregnancy.[4] A very simple extrapolation using Wisconsin population statistics has sobering results: 1200 children born in Wisconsin each year may suffer the same fate. This number is very conservative and does not account for Wisconsin's fishing tradition and thousands of inland lakes. Neurotoxins like mercury that compromise the health of children also produce negative economic impacts.

The Seattle, WA nonprofit HMO Group Health of Puget Sound studied excess medical costs for children diagnosed with Attention Deficit Hyperactivity Disorder (ADHD); attention deficit is one of mercury's health effects. They estimated that for almost 3000 children with ADHD, the HMO paid $2.3 million extra for their care, compared to health care costs for 3000 control children without ADHD.[5]

Disabled children cost more to educate. The Madison Metropolitan School District itemized costs for Governor McCallum in May 2001, for the education of children with disabilities; the lowest cost for special education needs was approximately $25,000 per disabled student per year.[6] Using the extrapolation of the NAS numbers:

1200 children/year X 12 years = 12,000 children X $25,000 X 12 years of school = $4.3 billion over the next twelve years to educate children affected by methyl-mercury exposure while their mothers were pregnant. If we were to assume that figure was exaggerated and were to halve it, the cost would still be staggering.

The above costs do not take into consideration the immeasurable costs and lost opportunities of children and families who are impacted by mercury exposure. Combining all of these costs dwarfs utility cost estimates for meeting the proposed Wisconsin mercury reduction rules.

Wisconsin can learn a valuable lesson from past lead reductions. In one of the most remarkable accomplishments in public health for children, in 1978, the federal government mandated removal of lead additives to gasoline, which reduced the number of lead-intoxicated U.S. children by 80% over the past two decades. Wisconsin has the opportunity to reduce mercury emissions and deposition and to be a national leader in improving public health.

Wildlife in Wisconsin is threatened by mercury. Eagles, loons, otters, and other fish-eating wildlife will benefit from reductions of mercury in their diet. One study of two Wisconsin lakes linked high mercury levels with lower hatching success and reduced survival of embryos in walleye. The dose of mercury that may adversely affect wildlife is extremely small. Therefore, reduction of mercury in aquatic ecosystems, even if small, will benefit wildlife and fish.

The tourism industry in Wisconsin generates roughly $10 billion each year. While that figure includes a wide variety of activities, fishing is without doubt a very important component of in-state tourism expenditures. According to the American Sportfishing Association, the overall economic impact of sportfishing in Wisconsin is over $2.1 billion/year.[7] If, due to increased public awareness of high mercury levels in fish, Wisconsin loses 5% of its tourism dollars, which would equate to a $500 million dollar loss/year; when multiplied over the life of the rule (15 years) that equates to $7.5 billion in lost revenues. A similar scenario would occur if Wisconsin had a 25% reduction in sport-fishing related expenditures.

If the Departments of Natural Resources and Tourism communicate to the public and to potential tourists that Wisconsin is taking positive steps ahead of other states to reduce mercury emissions, there will likely be a "goodwill" effect in which Wisconsin is rewarded. This is especially realistic if Wisconsin is compared to Minnesota as a potential tourist destination; Minnesota has only a voluntary mercury reduction initiative for utilities and has not stepped up their efforts to require reductions.

1. Knauer, Doug. Wisconsin Department of Natural Resources, personal communication.

2. Watras, Carl and Hrabik, T.R., 2001. "Recent Declines in Mercury Concentration in a Freshwater Fishery: Isolating the Effects of De-Acidification and Decreased Atmospheric Mercury in Little Rock Lake." (awaiting publication)

3. Schettler, Ted et al., 2000. *In Harm's Way: Toxic Threats to Child Development*, Greater Boston Physicians for Social Responsibility.

4. National Research Council. *Toxicological Effects of Methylmercury*. National Academy Press. 2000.

5. Guevare, J. et. al. "Utilization and Cost of Health Care Services for Children With Attention-Deficit/Hyperactivity Disorder", Pediatrics, Vol. 108, No. 1, July 2001, pp. 71-78.

6. Madison Metropolitan School District. *MMSD Low-Incidence/High Cost Special Education Experience*. May 2001.

7. *The Economic Importance of Sport Fishing.* American Sportfishing Association, 1998.

Utility Stakeholders Perspective

It is critical that the proposed rules consider the linkages between mercury emissions sources and environmental consequences. Requirements for mercury reductions need to be based on information about the potential environmental benefits that can be accomplished. Some understanding must be established about how much of the mercury in Wisconsin lakes comes from sources within the state, and some reasonable prediction must be made about the anticipated impact of the rules on reducing state fish advisories.

A proposal was made to the Department for mercury deposition modeling to be done as part of the public involvement process related to the state rules. When this was declined, Wisconsin utilities, through the Wisconsin Utilities Association, conducted a mercury modeling study so that this information could be considered during DNR's proposed mercury rule-making process. The "Wisconsin Mercury Deposition Case Study" was announced in February of this year, and results were released in May. The objective of the study was to estimate the proportion of mercury being deposited to Wisconsin's lakes and waterways that comes from sources inside the state. The study placed special emphasis on potential contributions from utility coal plants since they are the focus of

mercury reductions in the proposed state rules. The research was managed by the Electric Power Research Institute (EPRI) and was conducted by Atmospheric and Environmental Research, Inc. (AER). It draws on the experience of leading national research scientists that routinely work with state and national environmental regulatory agencies, including USEPA.

The study found that mercury deposition declines by one to four percent over most of the state when Wisconsin utility emissions are completely eliminated. These estimates are based on model simulations that incorporate the Department of Natural Resources' most recent inventory of mercury sources plus regional meteorological and geographic data. The model is verified against actual measurements of mercury deposition collected from the Mercury Deposition Network (MDN). Two other emission reduction simulations were conducted in addition to the scenario that focused exclusively on elimination of in-state mercury emissions from Wisconsin's coal-fired electric plants. These other scenarios included an elimination of all anthropogenic (man-made) mercury emissions from Wisconsin, plus a scenario in which all coal utility boiler emissions from Minnesota, Iowa, Illinois, Indiana, Michigan, Missouri, and Ohio were set to zero. The modeling generally concluded that one to four percent comes from Wisconsin power plant emissions, four to 10 percent of mercury deposited in-state comes from the combined total of Wisconsin sources, and that 6-18% comes from Wisconsin sources plus regional power plant emissions:

Estimated Reductions in Mercury Deposition at Model Locations Corresponding to Wisconsin MDN Measurement Stations

MDN Site	No Wisconsin mercury emissions	No Wisconsin mercury emissions and no regional power plant mercury emissions	No power plant mercury emissions in Wisconsin
WI08 – Brule River	-6%	-9%	-1%
WI09 – Popple River	-5%	-8%	-1%
WI36 – Trout Lake	-4%	-6%	-1%
WI99 – Lake Geneva	-10%	-18%	-4%

The simulated utility contributions are likely to be conservative because current modeling techniques simplify the chemical reactions that take place in power plant emissions. The findings in the report therefore represent likely upper limits on regional deposition from Wisconsin coal plants.

The modeling represents the most extensive study on Wisconsin mercury emissions completed to date. The results of two previously available agency-funded mercury modeling studies using USEPA models were reviewed and compared to the case study's findings. These were the U.S. Environmental Protection Agency (EPA) study conducted in the mid-1990's and a more recent study funded by the Lake Michigan Air Directors Consortium (LADCO), comprised of state air regulatory agencies of the upper Midwest.

The LADCO study was released in January of this year. It estimated that utility sources in Wisconsin contribute one to five percent of mercury deposition as simulated at the locations of the four Wisconsin MDN monitors. The USEPA study was part of the comprehensive Mercury Study Report to Congress, required as part of the 1990 Clean Air Act Amendments. It estimated that less than seven percent of mercury emissions from large coal-fueled utility boilers is deposited within 50 kilometers of each facility.

A common finding across the three modeling simulations is that over most of the state all of the models attribute less than 10 percent of local or regional deposition to utility sources.

The modeling results represent a snap shot in time but so far represents the most extensive study completed to date. The study is currently being considered for publication, and includes the following references:

Constantinou, E., A. Wu and C. Seigneur, 1995. Development and application of a reactive plume model for mercury emissions, *Water Air Soil Pollut.*, **80**, 325-335.

Edgerton, E.S., Hartsell, B.E.and Jansen, J.J, 2001. Atmospheric mercury measurements at a rural and urban site near Atlanta, GA, USA. 6th International Conference on Mercury as a Global Pollutant, 15-19 October 2001, Minamata, Japan.

EPA, 1997. Mercury Study Report to Congress, Volume III: Fate and Transport of Mercury in the Environment, EPA-452/R-97-005, U.S. Environmental Protection Agency, Washington, D.C.

EPRI, 2000. Assessment of Mercury Emissions, Transport, Fate and Cycling for the Continental United States: Model Structure and Evaluation, EPRI Technical Report 1000522, EPRI, Palo Alto, CA.

EPRI, 2001. Report 1000608, EPRI, Palo Alto, CA.

EPRI, 2002. Nested-Grid modeling of the fate and transport of atmospheric mercury, Report prepared by AER for EPRI, Palo Alto, CA

Harris, R., S. Gherini and R. Hudson, 1996. Regional mercury cycling model: a model for mercury cycling in lakes, R-MCM Version I.V User's guide and technical reference; EPRI, Palo Alto and Wisconsin Department of Natural Resources, Madison, Wisconsin.

ICF Consulting, 2002. Application of the REMSAD Modeling System to the Midwest, Memorandum to LADCO, San Rafael, California.

Karamchandani, P., C. Seigneur, K. Vijayaraghavan and S.-Y. Wu, 2002. Development and application of a state-of-the-science plume-in-grid model, *J. Geophys. Res.*, in press.

Laudal, D.L., 2001. JV Task 24 – Investigation of the Fate of Mercury in a Coal Combustion Plume Using a Static Plume Dilution Chamber, Final Report 2001-EERC-11-01, U.S. Department of Energy, Pittsburgh, PA.

van Loon, L. E. Mader and S.L. Scott, 2000. Reduction of the aqueous mercuric ion by sulfite: UV spectrum of $HgSO_3$ and its intramolecular redox reactions, *J. Phys. Chem.*, **104**, 1621-1626.

van Loon, L. E. Mader and S.L. Scott, 2001. Sulfite stabilization and reduction of the aqueous mercuric ion: Kinetic determination of sequential formation constants, *J. Phys. Chem. A*, **2001**, 3190-3195.

MDN, 2000. National Atmospheric Deposition Program (NRSP-3)/Mercury Deposition Network, NADP Program Office, Illinois State Water Survey, 2204 Griffith Drive, Champaign, IL.

Pai, P., P. Karamchandani and C. Seigneur, 1997. Simulation of the regional atmospheric transport and fate of mercury using a comprehensive Eulerian model, *Atmos. Environ.*, **31**, 2717-2732.

Schroeder, W.H. and J. Munthe, 1998. Atmospheric mercury: an overview, *Atmos. Environ.*, **32**, 809-822.

Seigneur, C., J. Wrobel and E. Constantinou, 1994. A chemical kinetic mechanism for atmospheric inorganic mercury, *Environ. Sci. Technol.*, **28**, 1589-1597.

Seigneur, C., P. Karamchandani, K. Lohman, K. Vijayaraghavan and R.L. Shia, 2001a. Multiscale modeling of the atmospheric fate and transport of mercury, *J. Geophys. Res.*, **106**, 27795-27809.

The proposed mercury rules are intended to reduce the amount of mercury that falls on Wisconsin waters, and ultimately mercury levels in fish and wildlife. However, since the expected reduction in the level of mercury deposited to lakes is so low, no reduction in fish advisories can be expected.

Another vital element to measuring any environmental benefits of the proposed rule is to determine what impact the required emission reductions would have on wildlife populations. To gain a better understanding of the impact of mercury deposition on wildlife, the Department of Natural Resources and the US Geological Survey conducted a study entitled, "Assessing the Ecological Risk of Mercury Exposure in Common Loons (Gavia immer)". The specific research objective addressed in the report was to quantify the level of mercury exposure associated with negative effects on loon chick survival and fitness (behavioral, biochemical, physiological, and histological measures) using captive-reared common loon chicks. The data, along with endpoints determined in related studies, was to be used to calculate the level of mercury in fish that safeguards reproduction and survival of the common loon, a "sentinel species" which derives over 95% of its diet from fish. The final products of this research were to be incorporated into the Regional Mercury Cycling Model (developed by EPRI, Tetra Tech, Inc. and WDNR) from which regulatory goals for mercury emissions and water quality standards that are protective of at-risk wildlife species will be developed.

Exposure levels used in the study were about 1 ½ to 3 times higher than occurs anywhere in Wisconsin. According to the study, "We observed no outright symptoms of mercury toxicosis and we found no significant difference in general behavior or food intake among the treatment groups. Repeated measures MANOVA indicated no effect of dietary mercury on the time activity budgets of loon chicks throughout the 105-day experiment, although age and year effects were identified...in general, there is no consistent evidence of effect of dietary mercury intake on growth. However, chicks from eggs collected on low pH lakes grew at a slower rate and may have obtained a lower asymptomatic mass than chicks from neutral pH lakes. We assessed cytogenic damage in loon chicks using the flow cytometry method, a biomarker that has proved useful in detecting DNA damage. Chromosome breaks result in the increase of cellular DNA

content variance in tissues. Preliminary analysis suggests no evidence of a relationship of DNA content variance and level of dietary methyl mercury..."

The lack of any evidence of negative effects on survival and fitness of a species that is at greatest risk of exposure being at a high trophic level, strongly suggests the conclusion that less vulnerable wildlife species are unlikely to be subject to any detectable threat from mercury exposure.

IV. Predicted Impacts

Some of the mercury control options that are currently available or are expected to be available in the near-term for reducing mercury emissions include fabric filters, carbon injection, oxidizing catalysts with scrubbers, and firing with natural gas. These options in addition to many other variables are used to help estimate the possible cost to utilities for controlling mercury emissions. These utility costs would most likely be passed on to industry and individual electric users. In cases involving expansions, industry sources may be subject to both increased control costs and electric costs. In addition to control options, consideration must be made regarding carbon in fly ash as a result of carbon injection (a control option) and its affect on the beneficial reuse of fly ash.

Utility Costs

Implementing the three mercury emission reduction phases contained in the proposed rules will have a direct cost to the major coal-fired electric utility companies which will then be passed on as a cost to Wisconsin residents. The predicted cost impacts for each of the affected major utility companies as filed by the companies with the Public Service Commission or the Department is listed below. These predicted costs are due to installing control technologies, retiring certain coal-fired generating units, power replacement costs associated with equipment construction and retrofitting, and construction of a natural gas infrastructure to replace coal as a fuel source.

Wisconsin Electric – The potential cost impact on the existing and planned Wisconsin Electric generation portfolio is in the range of $1.4 to $3.3 billion, in 2001 dollars. By comparison, Wisconsin Electric's current total revenue requirement for its electric utility operating in Wisconsin is approximately $1.5 billion. The range includes the cost of switching major portions of Wisconsin Electric's generating fleet to natural gas through significant investment in a new gas plant or purchased power (up to $2.9 billion). It also includes the cost of installing, operating and maintaining new mercury control equipment, and the cost of mercury offsets (if available).

Alliant Energy – It is extremely difficult to estimate the costs to comply with the proposed mercury rule. There are many additional factors to consider such as which units to retrofit, which units to retire and at what point in time.

It is important to understand three important attributes of technological cost estimates. First, estimates of small relative changes are more accurate than large changes. Second,

near term changes are more easily modeled and estimated than are long term changes. Third, it is easier to anticipate indirect consequences of changes in processes that have near term alternatives than for processes such as electric generation that have no near term alternative.

Given the limited data and recognizing that more knowledge will continually be gained, Alliant Energy has estimated the following costs of compliance:

Reduction Requirement	Capital Expenditure (million$)	Annual O&M
30%	35-47	13-29
50%	68-110	23-53
90%	Unknown*	Unknown*

* At this point, there are too many uncertainties to provide a reasonable estimate of the costs associated with a 90% reduction requirement.

Wisconsin Public Service Corporation – Achieving the 30% level of reduction (Phase 1) would require controls on Weston 3 and Columbia 1. The added revenue requirements for this phase are approximately $14.8 million per year or an accumulated P.V. (Present Value) cost of $155 million. Achieving a 50% (Phase 2) reduction would require additional controls on Columbia 2 and Pulliam 8. The combined revenue requirements for Phase 1 and Phase 2 would be approximately 23.3 million per year or accumulated P.V. cost of $243 million. Achieving a 90% reduction (Phase 3) has the following effects. Controls would have to be installed on Weston 3 and Columbia units 1 and 2. The following units would have to be retired: Pulliam units 5 through 8, Weston 1 and 2, and Edgewater 4. Depending on what the units are replaced with, natural gas or coal, the added real levelized revenue requirements would range from $103 to $107 million/year (2001 dollars). The accumulated P.V. cost would be $1.08 to $1.12 billion.

Dairyland Power Cooperative – The current cost estimate is $20 million in annual capital and operating and maintenance expenses for a ten year period to install and operate control equipment and for disposal of solid waste in order to comply with phase one (30%) and phase two (50%) reduction levels. The capital cost estimate includes $5.6 million for the retrofit of carbon injection equipment at Genoa 3 and John P. Madgett generating stations. It also includes capital projects in the fall of 2005 and spring of 2006 for the retrofit addition of fabric filter baghouse particulate control devices at the Genoa 3 ($29 million), and the John P. Madgett station ($36 million). Dairyland's estimates for this one-time replacement power cost associated with equipment construction is not included in the capital or operating and maintenance cost estimate. Dairyland is not able at this time to provide any estimates of the cost of compliance for the third phase (90%) reduction level.

Industry Costs

Commercial and industrial energy users are expected to have increased electricity costs as a result of the proposed mercury reduction rule. Although it is extremely difficult to predict industry costs, one utility serving thirteen paper companies estimated that the cost

of the proposed rule would increase electric rates by 25%. This translates to an increased energy cost to the affected paper companies of almost $21 million per year. This is an estimate for only one part of one industry and the cumulative impacts on all industries will be significantly higher. In addition, industrial facilities subject to the proposed rule's mass cap requirements may be forced to install control equipment if they were to expand production above 1998-2000 baseline levels.

Another study by Wisconsin Manufacturers and Commerce (WMC) includes the following conclusions:

- During the time period from 2007 to 2016, utilities will expend almost $1.1 billion to meet the proposed rule's 30 and 50 percent reduction targets.

- Individual industrial customers could incur additional electricity costs of up to $517 thousand for the 2007 to 2016 time period.

WMC did not conduct a cost analysis for the 90% mercury reduction requirement because of the belief that there is a lack of available control technologies to reach that target.

Electric Reliability

The proposed state mercury reduction rules present four main areas of reliability risk: 1) construction and availability of new capacity, 2) lack of fuel diversity, 3) development of a significantly expanded statewide natural gas infrastructure, and 4) mercury controls performance and balance of plant impacts. Each of these is of concern individually, but also present cumulative risks to the availability, performance, and price of the state generating system.

The term reliability is often used narrowly to refer to the ability of the electric system to respond to high demand levels over relatively short time periods. But that narrow approach assumes that adequate infrastructure is already available to provide energy, albeit over a longer time frame. The process of switching from coal, which is the predominant electric generation fuel source in Wisconsin, has the potential to create system reliability concerns. Two areas of concern are the ability to locate replacements for retired generating plants in areas compatible with the existing transmission system and the ability to match the present responsiveness of coal-fired plants to system conditions from fuel stored on-site or nearby. Consideration should be made with respect to the magnitude of items needing to be addressed when replacing existing coal-fired plants with new plants located at or near existing plants. There may be local community concerns such as questions about the construction process, water use issues, minimizing the footprint of the new facility within existing property, and reinforcing the existing gas delivery system in a manner that assures reliable service to meet present load.

Purchase of energy from outside the state to meet growing demand may be a very limited option. Power from outside of the state may not be cheaper than building replacement

capacity within the state and the importation of electricity from outside the state could provide additional stress on our existing transmission systems. Currently, Wisconsin's coal-fired utility units are used primarily for base load electricity generation. The requirement to remove 90% of mercury emissions may result in fundamental changes to the operation of Wisconsin's coal-fired power plants.

Changing the dispatch of or requiring significant modifications to coal-fired power plants affects all aspects of the electrical system. Each alternative to coal, ranging from fuel switching to new technologies, has specific and often unanticipated consequences on the system. For instance, coal is used primarily for base load. Coal units operate around the clock and are the last units to be taken off the system as load demand declines. Use of gas-fired generation may produce significantly lower reliability at times of peak gas delivery demand because power plants do not have the ability to store natural gas locally for immediate use. Coal-fired units, on the other hand, typically have several weeks of fuel supply at the plant. Significant fuel switching to natural gas is not always feasible for various reasons, such as:

- Lack of an adequate gas pipeline infrastructure.
- New gas pipelines require environmental siting and permits.
- New gas-fired power plants require regulatory approvals.
- Availability and storage of natural gas will require additional investments.
- Fluctuation of immediate and long-term supplies of natural gas.
- Increased reliance on natural gas places greater demands on gas delivery system and may affect consumer electric and gas prices.

Ash Disposal

Carbon injection is currently the most promising new add-on technology for removing mercury from utility exhaust gases. This technology injects activated carbon into the exhaust stream allowing mercury to be captured by particulate control equipment. However, using carbon injection installed before existing particulate control equipment causes carbon to accumulate in the fly ash along with the captured mercury. The carbon may make the ash unsuitable for recycling in concrete products necessitating that it be disposed of in a landfill. Wisconsin Electric recently reported that carbon injection contaminates fly ash and renders it not useable for beneficial re-use in concrete products. These results were one of the findings of the first full-scale test program for assessing carbon injection technology. The test was conducted at the company's Pleasant Prairie power plant as part of a collaborative U.S. Department of Energy study funded by the National Energy Technology Laboratory. The Department of Natural Resources estimates that for the year 2000, Wisconsin utilities beneficially reused 72% of the approximately 2 million cubic yards of coal combustion ash they generated compared to a national average of approximately 33%.

Contamination of coal combustion ash as a result of carbon injection could result in approximately 1.5 million cubic yards of additional material being land disposed in Wisconsin. This is a projected cost of over $22 million annually for land disposal in

addition to estimated lost revenue of over $12 million per year. These additional costs will also affect Wisconsin utility rates. Additional concerns exist related to the environmental impacts that may result from expansion of landfills due to the volume of increased ash disposal and uncertainty regarding the stability of mercury in landfill systems.

It must be noted that the installation of carbon injection after the existing control equipment and with the addition of a fabric filter may greatly minimize the percentage of fly ash that would contain carbon as well as mercury. This is because most of the fly ash would be collected before the injection of carbon to control mercury. However, the installation of a fabric filter after the carbon injection system would be at a greater additional cost since fabric filters are a major capital investment. In addition, the installation of a fabric filter may not be practical at some utility boilers due to space constraints and would require a case-by-case analysis of their applicability.

V. Integration of Existing and Pending Federal Activities

There are a number of existing and pending federal activities to reduce mercury emissions that could potentially affect those facilities that would be regulated under the proposed Wisconsin mercury reduction rules. Current federal activities include MACT (maximum achievable control technology) standards for industrial boilers, coal and oil-fired utility plants, waste incinerators, and chlor-alkali plants. Other federal activities include multi-pollutant legislation, the President's Clear Skies Initiative, and revisions to New Source Review regulations. Based on the reduction levels and schedules, the pending federal activities may have implications on the planning and cost for mercury control, as well as the amount of emission credits available to trade under the proposed state rules.

In addition, there may be a need for the state to reconcile differences between state and federal air toxic standards in the event both state and federal mercury rules are promulgated. Wisconsin law, Section 285.27(2)(a), Wisc. Stats., provides that if an emission standard is promulgated under section 112 of the Clean Air Act, the Department shall promulgate a similar but no more restrictive standard in terms of emission limitations.

MACT (Industrial, Utility, Incinerator, Chlor-alkali)

MACT standards are based on available control technology, meeting an emission rate, or a percent reduction, using the average performance of the top 12% of similar units. USEPA is working under established deadlines to promulgate MACT standards. If the agency misses a MACT promulgation deadline, a provision called the MACT Hammer (section 112(j) of the Clean Air Act) becomes applicable to sources 18 months after USEPA's missed deadline.

This hammer provision requires sources to submit a permit application that would include the source's determination of MACT for its facility. However, because the utility MACT

is under a court-ordered deadline, it is unclear as to whether the hammer provisions would apply if USEPA does not meet its deadline for a final rule.

Industrial – The USEPA has indicated that a mercury MACT standard will be proposed for industrial boilers by the summer of 2002. Final promulgation of the standard is expected in 2003. With a 3-year implementation schedule, the compliance deadline for sources would be 2006.

USEPA has indicated that the standard will likely be based on fabric filter technology and stated in terms of pounds of mercury released per trillion Btu of heat input for individual emission units within a facility. The proposed state rules (an emissions cap) would apply to any facility that emits 10 pounds of mercury per year. It appears that the federal MACT will apply a standard of 4 pounds per trillion Btu for each unit. Because of the variations in coal characteristics, combustion processes, and in-place emission controls, the impact of the federal standard is unclear. Some industrial facilities may need to install additional controls to meet the federal standard while others may not require additional controls. A determination of whether the proposed state rules or federal MACT would be more stringent can only be made on a case-by-case basis after more information is known about the federal rule.

Utility - In December 2000, the USEPA issued its determination that because of the risks to human health, mercury emissions from coal and oil-fired electric utility plants must be reduced. As a result of a court-ordered action, the agency is required to develop proposed regulations by December 15, 2003, and issue final rules by December 15, 2004. Compliance by sources with the rules would be required by December 15, 2007 (three years after promulgation of rules). It is unclear at this time if the hammer provisions of the MACT program would apply to the utility MACT.

USEPA is developing the utility MACT standard with consideration of the type of coal (sub-bituminous and bituminous) and control equipment that is currently used at existing utility plants. Since the proposed rules have not been issued yet, it is not certain what the level of control will be for coal-fired units. Based on the final selection of the fuel and control equipment categories, the level of control may range to upwards of 76% for sub-bituminous coal (predominately used in Wisconsin) and 98% for bituminous coal. It is anticipated that the utility MACT standard will apply to the utility units that would be affected by the state's proposed mercury reduction rules. The level of reduction and the timing required by the utility MACT and the proposed state rules may require two different strategies. This is due to the fact that the proposed state rules are based on a system-wide standard whereas MACT is a performance standard that will apply to each affected coal-fired utility unit. This discrepancy has implications for control technology, design, planning, and capital costs.

Incinerator – A MACT standard has already been established and implemented for waste incinerators that includes an emission rate limitation for mercury. The proposed state reduction rules include a cap on emissions from waste incinerators. Because of the

fundamentally different approaches in standards, there may be some inconsistencies between the federal incinerator MACT and state proposed mercury reduction rules.

Chlor-alkali – The current standard for chlor-alkali facilities is a NESHAP (National Emission Standard for Hazardous Air Pollutants) that was issued in the 1970s. A MACT standard is under development and is due to be proposed in 2002. There is a strong indication that the MACT standard will be based on the only chlor-alkali facility located in Wisconsin, which uses a best management practices approach to controlling mercury emissions. The proposed state reduction rules include a cap on emissions from the chlor-alkali plant. There are no known incompatibilities between the federal chlor-alkali MACT and the state proposed mercury reduction rules.

Multi-pollutant Approaches

There are a number of different multi-pollutant activities proposed by the federal government to reduce mercury emissions as well as emissions of other pollutants (sulfur dioxide, nitrogen oxides, and carbon dioxide) from electric utility plants. These activities include the Administration's Clear Skies Initiative, two congressional bills, and a USEPA straw proposal. The activities all have different reduction requirements and/or schedules and are at different stages of development with no set schedules for final completion. The federal multi-pollutant activities also differ in their requirements and stage of development when compared to the state proposed mercury reduction rules and the federal utility MACT. It is also possible that one of the multi-pollutant activities may supersede the federal utility MACT standard. These uncertainties make the timing and impact of the multi-pollutant activities, the federal utility MACT, and the proposed state rules difficult to predict and may cause implications to utility companies in the planning and costs to meet final emissions reduction requirements.

Clear Skies – On February 14, 2002, President Bush proposed his Clear Skies Initiative that would reduce power plant emissions for sulfur dioxide (73%), nitrogen oxides (67%), and mercury (69%). For mercury, emissions would be reduced from a current level of 48 tons per year to a cap of 26 tons per year in 2010 (a 46% reduction), and 15 tons per year in 2018 (69% reduction). The Clear Skies Initiative is a multi-pollutant approach that includes a market-based cap-and-trade program. Details are currently being developed for the initiative.

New Source Review

Major modifications proposed at utility or industrial facilities such as fuel switching, installing control equipment, or modifying existing equipment in order to meet required emission reductions may in some cases, trigger federal New Source Review regulations. Modifications are reviewed and a comparison is made between past actual emissions with potential future emissions. Modifications that result in calculated emission increases above specified threshold levels trigger the installation of Best Available Control technology. However, under limited circumstances, these modifications may be considered exempt from new source review under a specific category of pollution control

projects (if there are only reductions of emissions) or through other means such as eventual reform of the federal rules. The applicability of New Source Review under the proposed mercury reduction rules can not be determined at this time and can only be made on a case-by-case basis during the permit review process for a proposed facility modification.

VI. Rule Issues, Alternatives, and Discussion

The Citizen Advisory Committee identified eight issues of concern associated with the proposed state mercury reduction rules. The issues include baseline determination, interaction of state versus federal requirements, periodic rule evaluations, affect on electric reliability, emission caps, growth in mercury emissions, mercury reduction requirements, and trading *(see Appendix E – Committee Retreat Issue Briefs)*. The Committee discussed each of the issues as well as proposed alternative options to address them at meetings conducted April 30 and May 1, 2002. The issues, alternatives, and discussion summaries are listed below. The numbers associated with each alternative is for identification purposes only and does not bear any relevance to member preferences or a ranking order.

At the conclusions of the retreat Committee members were given an opportunity to provide a summary outlining their recommendations for a state mercury regulation considering the eight issues of concern *(see Appendix F – Member Recommendations for an Integrated State Mercury Regulation)*.

ISSUE A: Baseline Determination - How should a mercury emission baseline be established for utility units or other mercury emitting sources that may be affected by requirements to cap and reduce mercury emissions?
Alternatives:

1. Select the current year fuel mercury content and emission rate data and apply to historic coal throughput during the identified baseline years.
2. Real time baseline – mercury in fuel compared to stack emissions out.
3. Use the baseline determination procedure in the proposed rules.
4. Use mercury emissions data from a recent year(s) or year(s) after the proposed rules are promulgated.

Committee Discussion:

Committee members recognized that it was likely that obtaining accurate historical emissions data and fuel mercury content information may be difficult. Alternative 1. received significant support as an appropriate adjustment to the proposed rules that maintained the fundamental approach of a historic baseline but allowed for the use of more accurate estimates of fuel content and emission data. Some committee members expressed concern about stack testing costs that may be associated with Alternative 1. Several committee members believed that USEPA's Information Collection Request data and related stack emission testing should be used as part of the method for determining

the baseline under this alternative. Under a multi-pollutant strategy some utilities favor use of the baseline approach expressed in Alternative 2.

ISSUE B: Interaction of State versus Federal Requirements - What is the relationship between a Wisconsin regulation and pending federal regulations that will require mercury emission reductions from electric utility boilers and industrial boilers?

Alternatives:

1. Set a reasonable first stage reduction that can be met. Then set a second stage reduction consistent with the federal MACT or federal law.
2. Develop specific rule language that avoids penalty for early action if MACT rules are defined as percent reduction from historic baseline.
3. Clearly state in rules that requirements i.e. cap, offsets do not apply to sources covered by a MACT standard.
4. Instead of having two reviews of the rule at certain dates, have the first review occur immediately after promulgation of MACT standard and the second as currently written in the proposed rule.
5. Include rule language that mandates that the state proposal be consistent and no more stringent than the federal MACT for utilities (applies to any federal MACT).
6. Indefinitely postpone the state rule until the federal programs for mercury emissions are in place.
7. Set the first and second stage reductions conditional on the federal MACT or federal law.

Committee Discussion:

This is a very significant issue for the committee. Most Committee members agreed that one of the goals of the proposed rules is to encourage and accomplish early action at the state level in anticipation of federal standards. However, no clear preference arose out of the dialogue. It is clear that there is a shared interest in having timely comparisons of state rules with federal proposals, particularly evaluations of two pending federal MACT standards, industrial and commercial boilers and utility boilers (see Issue C).

However, for some committee members it is important to have specific rule language, as in Alternative 5., that mandates how the rules should change in response to a promulgated federal MACT standard or new federal law. It is clearly the interest of some committee members not to have more stringent state requirements than requirements that would eventually be set in federal regulation or federal law because it would put state industries at a competitive disadvantage with industries located in other states and countries. Taking action before federal requirements is acceptable to some committee members but not at the risk of economic penalty if the action they take goes beyond the eventual federal requirements. Some committee members noted that state rules must provide a means for assuring baseline protection and avoiding penalty for early action.

Other committee members are not in favor of prescriptive language in the rules. Instead they suggest that staff conduct an evaluation focusing on reconciliation of the differences and make recommendations to the Natural Resources Board on appropriate actions including suggested possible revisions to state rules.

Issue C: Periodic Rule Evaluations - What should the frequency and content of the rule evaluation reports to the Natural Resources Board be?

Alternatives:

1. Instead of having two reviews of the rule at certain dates, have reviews occur immediately after proposal of MACT standard or passage of federal legislation on mercury. Subsequent reviews no more than 18 months after the last review.
2. Develop 2-phased rule package that sets phase I rules, but sets conditional phase II rules contingent on the federal utility MACT standard or federal law. Department to evaluate phase II rules once MACT standard is finalized and report back to the Natural Resources Board. Process to include an advisory committee and public comment period.
3. Stay with the evaluation in the proposed rules.
4. Department will provide Natural Resources Board with a status report upon proposal of federal mercury MACT standards with opportunity for public input. Department shall also prepare a review upon promulgation of federal MACT or federal legislation in order to reconcile state and federal requirements. However, status reports should be prepared a minimum of every 2 years notwithstanding this commitment.

Committee Discussion:

Strong support expressed by committee members for Alternative 4. It is recognized that federal rules can change from proposal to promulgation, which favors making specific recommendations to the Natural Resources Board, after federal rules are promulgated.

ISSUE D: Affect on Electric Reliability - Are the variance procedures adequate to safeguard electric reliability?

Alternatives:

1. Provide variance opportunity for mass cap (industrial and non-major utility) sources affected by the mercury rules.
2. Maintain existing rules and variance language.
3. Modify rules so they are “cost-effective, reasonable, and do not interfere with the ability of electric utilities to supply the state’s energy needs”, and fine-tune existing variance language.
4. Maintain existing rules and expand variance language beyond focus on short-term, one-time occurrences of electric supply emergencies or fuel supply disruptions to include situations where the compliance standards are not feasible or lead to fuel-switching.

Committee Discussion:

Committee members felt that the existing variance language in the proposed rules are confusing and needs clarification. Committee members agreed that it would be appropriate to consider adding provisions in the rules to address short-term compliance issues (e.g. maintenance or compliance margins for new technology) in addition to the current variance provisions. The committee members recognized the work of the Technical Advisory Group on this issue and deferred to their efforts to provide recommendations on short-term compliance issues and as well as adjustments to the existing variance language. Committee members also expressed no objection to the addition of variance provisions for sources other than major utilities (Alternative 1.).

ISSUE E: Emission Caps - Should major industrial sources have requirements in the proposed rules that place a cap on their annual mercury emissions?

Alternatives:

1. For industrial sources, require energy efficiency improvements in lieu of a cap.
2. Eliminate the rule requirement for major stationary sources and create a provision to allow them to opt-in if they want to create emission reduction credits.
3. Eliminate the requirements for major stationary sources.
4. Maintain existing rules proposal.

Committee Discussion:

The committee did not reach agreement on the role for industrial sources in the proposed rules. A positive development was interest, shared by many committee members, in an energy efficiency improvement program for industrial combustion sources instead of an emission cap. It was understood that additional discussions are needed to determine what this approach may involve.

Some committee members are doubtful that industrial sources can provide enough emission reduction credits to support the emissions offset requirement for new sources in the proposed rules. Therefore, they believe there is no need to establish baselines and set emission caps on industrial sources. Some committee members don't believe that industrial sources have significant mercury emissions, with a very few exceptions, and therefore regulation under these rules isn't appropriate. These representatives believe that an opt-in approach (Alternative 2.) is all that should be considered in the proposed rules.

Some members of the committee do favor emission caps and feel industrial sources should be regulated in the proposed rules.

ISSUE F: Growth in Mercury Emissions - How should growth in mercury emissions be addressed in the proposed rules?

Alternatives:

1. To address growth, establish technology-based emission limitations for existing sources as well as new sources.
2. Phase emission offset ratio over time, initially 1.5: 1.0, to a more reasonable ratio of 1.0: 1.0.
3. Instead of emission offsets establish a mercury control technology requirement for new sources and modifications of existing sources with substantial mercury emissions.
4. Eliminate the offset requirement and rely on the rule's emission caps, reduction requirements, and federal MACT standards already applicable to new utility sources.
5. Emission offsets for new sources take effect at rule promulgation.
6. Require mercury emission reductions equal to 150% of the annual mercury emission increase from any new source or modification of an existing source without a lower mercury emission threshold of 10 pounds.
7. Alter emission offset ratio to a more reasonable 1.0:1.0 ratio.
8. Maintain offset provisions in the proposed rules.
9. Require mercury control technology for new sources and modifications of existing sources with substantial mercury emissions only if a finding were made that there would be a benefit from the reductions that would be achieved.

Committee Discussion:

Some committee members oppose new source emission offsets in the proposed rules. These committee members emphasize that the current federal program for hazardous air pollutants has technology requirements for major new sources or major modifications (e.g. utility boilers and industrial and commercial boilers) that would result in mercury emission reductions. The federal technology requirements combined with a state emissions cap and a reduction schedule for existing utility plants creates a comprehensive state-only program without the inclusion of an offset program. These committee members are also concerned that the proposed offset provision is a disincentive to replacing older plants and are also concerned that not enough emission credits would be created to meet the stringency of 1.5 to1.0 offset ratio.

Other committee members supported the proposed emission offset approach for new sources and suggested that it be applied upon rule promulgation instead of 4 years after the rule effective date as currently proposed. Two alternatives were proposed (Alternative 2. and Alternative 7.) to respond to the concern that emission credits availability might be limited.

ISSUE G: Mercury Reduction Requirements - The schedule and stringency of mercury emission reductions required of the four major electric utilities.

Alternatives:

1. Instead of a percent reduction requirement, the first phase requires major utilities to achieve mercury emission reductions by installing control technology on a significant unit in their system.
2. Require a two-step reduction schedule, 25% by 2006 and 90% by 2010. If trading is allowed, require 90% mercury reductions by 2008. Expand reduction requirement to include all utilities and government owned boilers with more than 10 pounds of mercury emissions in one year including chlor-alkali plants, medical waste incinerators, municipal waste incinerators and other significant sources. Include a provision for the virtual elimination of mercury 20 years after rule promulgation.
3. Include provision for a multi-pollutant reduction alternative that would allow a major utility the opportunity to propose a multi-pollutant reduction program instead of achieving the mercury reduction requirements in the rules. Mercury reductions would still need to be an element of the proposal, which would also require a commitment to provide other environmental benefits beyond existing laws and rules. The proposal would also need to include a schedule to accomplish the alternative program. The alternative program would be subject to a public hearing.
4. Provide an advanced technology option in lieu of a percent reduction requirement.
5. Require a two-step reduction schedule, 10% by 2007 and 40% by 2012.
6. Proceed with the proposed rules.
7. Implement a voluntary program.

Committee Discussion:

No agreement was reached on a schedule and amount of mercury emission reductions for major utilities in the proposed rules. Certain committee members were firm in their support for a two-step reduction schedule (Alternative 5.) of 10% and 40% mercury emission reduction with a multi-pollutant reduction alternative. Other committee members were adamant about the proposed rules achieving a 90% mercury emission reduction from the major utilities (Alternative 2.).

Alternative 1. was discussed extensively at the retreat although its details were never fully defined. It was offered as a way of addressing some of the anticipated conflicts that the pending utility MACT standard or a federal multi-pollutant law might pose if the first phase of the rules remained as a percent reduction requirement. It was also described as a way to encourage and allow technology testing and development. Some committee members indicated that the concept had merit, but viewed it more as a compliance option, or supplemental option. Some committee members indicated they might not support this approach if it required permanent installation of the control that was being developed since the testing could reveal that the technology didn't perform as anticipated, had undesirable plant impacts, or was more expensive than anticipated.

ISSUE H: Trading - Should compliance with the proposed mercury rules include provision for emission reduction credits created from mercury product collection projects or pollution reduction projects?

Alternatives:

1. Eliminate small source trading (mercury product collection) provision; leave large source trading provision as is. Give credit to sources that made reductions after the baseline years but before rule promulgation.
2. Over the life of the rule phase out the trading program.
3. Do not include mercury containing product reduction program and limit the ability to meet emission reduction requirements by obtaining certified emission reductions from others to 20%.
4. Create an initial pool of emission reduction credits at rule start-up.
5. Eliminate trading provision entirely.
6. Proceed with the trading provisions as outlined in the proposed rules.
7. Limit use of emission credits to an approved variance to a mercury reduction requirement.
8. Do not set limits on the use of certified emission reduction credits.

Committee Discussion:

The committee is not in agreement that trading of emission credits should be an option in the proposed rules. Some committee members would very reluctantly accept emission credit trading, with restrictions (Alternatives 2., 3., and 7.). Other committee members believe that the compliance flexibility provided by an emission credit trading option is important and that trading is a necessary component of the proposed rules particularly because mercury controls are in the early stages of development. The emission credit provision is also viewed as a way to encourage mercury emission reductions from non-utility sources. For many committee members the specifics of a trading program are dependent upon how other parts of the proposed rules are finalized. It must be noted that federal law prohibits the trading of hazardous pollutants such as mercury.

There was some support for Alternative 4. if the mercury product collection program was eliminated and the period of time that emission credits could be claimed was extended. Currently the proposed rules will only consider emission credits for actions that occur after the rule promulgation date. Under this addition to Alternative 4., the period of time to consider reductions would extend back to the baseline years. This combination of Alternatives 1. and 4. was viewed as a way to improve the viability of the emission credit provisions in the proposed rules.

VII. Committee Member Statements

As part of the final review of this report committee members were given an opportunity to provide a final statement about the proposed mercury rules. The following are member statements that were provided.

Alliant Energy – Joe Shefchek

Alliant Energy (AE) appreciates the opportunity to participate in the CAC, which was successful in opening discussions amongst a broad spectrum of stakeholders.

Unfortunately, as evidenced by the lack of consensus achieved, the process was not conducive to constructive development of reasonable alternatives or resolutions. AE continues to have serious reservation regarding the proposed rule, given that the final CAC report is not reflective of many of AE's comments or recommendations as an active CAC participant. AE is committed to providing reliable, affordable energy to our customers and to protecting the environment. To achieve this balance, AE remains firm in our willingness to support mercury emissions standards based on sound science and realistic technology assessments. We believe that key provisions of the proposed rule need significant revision before it can be practically implemented, including: modification of the level and timing of reductions; elimination of new source offsets; expansion of baseline alternatives; clarification of variance provisions; addition of multi-emissions control options; streamlining of compliance and reporting requirements.

In serving our customers, AE must consider the most effective and equitable solutions to this and other environmental policy issues. It is widely recognized that mercury in the environment is a global multi-media issue, and USEPA has many on-going federal initiatives to reduce mercury in the environment. This includes the national utility MACT standards that EPA will promulgate by 2004. In fact, Wisconsin's own law prescribes that any state regulation cannot have more restrictive emission limitations. This needs to be considered in light of significant unintended effects that the proposed Wisconsin rule poses for AE's customers - including: limited, if any, improvement to Wisconsin's fish advisories; significant impacts to electric rates and Wisconsin's energy policy; potential electricity reliability concerns due to lack of commercially-proven control technologies; and, environmental impacts from landfilling of contaminated fly ash (over 75% is currently beneficially re-used) due to carbon-injection for mercury emission controls.

Due to many outstanding technical and regulatory rule issues, AE recommends focusing efforts on setting a reasonable first-phase 5-year reduction for utilities. This reduction level should be consistent with WUA's recommended alternative of 10% and 40% reductions, in 5 and 10 years respectively. The rule should also provide for clear alignment with upcoming USEPA federal MACT rules, so that our state is not at economic disadvantage with respect to the rest of the nation. Clearly, it is very critical to develop proposed rules jointly considering input from affected sources on policy, technical and compliance-related decisions. This opportunity remains even though the CAC process has not yielded clear guidance or resolutions. AE strongly encourages further discussions with the Department and other stakeholders, including the PSCW, and requests that an on-going dialogue continues with directly affected sources throughout the rule finalization.

Environmentally Concerned Citizens of Lakeland Areas – Mark Yeager

Although the interests of the CAC members were varied and sometimes in opposition, some facts need not be. The Technical Advisory Group Issue Summary shows that very substantial cleanup of mercury emissions is possible now. "Commercially Available Technologies" (Table I) show 73% to 89 % average reductions. "Commercially

Emerging Technologies"(Table II) show greater than 90% reduction indicated in tests now. Carl Watras' findings showed that lake contamination would respond quickly with increased health when emissions are reduced.

Does Wisconsin's economic value system and its accompanying political stance need to choose making a profit at the expense of citizen's (and wildlife, water, air, & soil's) health? Our entire State's body of lakes and rivers decline in health and even autism in children is now linked to mercury emissions. The Public Service Commission allows Utilities to profit at least 12.9% on their expenses. Therefore the lack of will to do business in Wisconsin in a clean manner is not based on a fear that increased expense is too unprofitable. It is perhaps based more on the fear that increased public awareness will recognize that cheap power causes harmful effects. This public knowledge may change a comfortable (though dirty) way of doing business in Wisconsin, but will not eliminate business in Wisconsin. It will only usher in a cleaner way of doing business.

The WUA modeling of mercury deposition is inaccurate in at least two instances. The ridiculously low (1% to 4 %) decline in Wisconsin mercury levels cited when WI utilities are eliminated could not have been "verified against actual measurements" as cited since at no time did utilities shut down and not emit. Maps of coal plants in North America show predominant emissions in the Southeastern US and the number of coal plants fairly evenly distributed in WI, MI, MN, and IL. The fact that WI experiences prevailing northwest instead of southeast winds disproves the claim that most mercury deposition is from out of state. When referencing the loon study on page 13 the WUA forgot to mention that only loon chicks up to 105 days old were studied. Not mentioned was that up to this stage mercury is deposited into feathers and not the loons vital organs. Unmentioned was that from the time adult feathers are formed mercury is absorbed in the adult loon nervous system and they are indeed substantially affected by mercury.

People want clean air, water, and soil...a clean life, and are willing to pay for it (June 1999 MN Pollution Control Agency & Legislative Commission on MN Resources Study). Utilities and Industry have had the opportunity for years to "voluntarily" clean up emissions. Now its time for a rule to nudge them forward. A cleaner Wisconsin will cost something today because years ago that cost was deferred to our future...which is now. Promised Court challenges will likely delay a Federal Rule even longer. Will we continue to defer our costs and responsibilities to our children and their children? Must we jeopardize our and our children's health and resources while we wait even longer for the "economic opportunity" to present itself? Going along with "business as usual" will not present this opportunity...only taking the initiative to clean things up will.

Great Lakes Indian Fish & Wildlife Commission – Ann McCammon-Soltis

In 1992, the Great Lakes Indian Fish and Wildlife Commission's (GLIFWC's) governing board passed a resolution recognizing the negative impact of mercury emissions on the ability of its member tribes to practice their traditional lifeway by poisoning a traditional food source and threatening tribal commercial fisheries. The resolution called for

mercury emissions to be reduced and for permitting agencies to hold industries to the highest technical standards to achieve these reductions.

A decade later, mercury issues remain an area of primary concern for GLIFWC's member tribes. Significant resources are devoted each year to fish collection and testing, data analysis, and the preparation of documents and maps designed to communicate risk information to tribal members and assist members in reducing their exposure to dietary mercury.

There is evidence that developing technologies may allow emission reductions of 90% within the next ten years or less. Therefore an aggressive schedule of 40% reduction in five years and 90% in ten years should be mandated in the DNR's rule.

The benefits of an aggressive approach to reducing mercury will be realized in multiple ways, most importantly in lower levels of mercury in fish tissue, but also in improved wildlife health and reduced costs associated with monitoring and health care. Finally, Wisconsin will benefit from its position as a leader in mercury reduction efforts and will pave the way for other state and federal rules that limit mercury discharges. Ultimately the actions of other jurisdictions will reduce the amount of mercury that is deposited Wisconsin, further improving the quality of Wisconsin's environment.

Sierra Club – Eric Uram

The Sierra Club would like to thank the DNR for pursuing this mercury air emission rulemaking in response to our petition. The Sierra Club wants to see that we ensure generations to come, the ability to access the bounty of Wisconsin's water without jeopardizing their health or the health of their offspring. For protecting both public and ecological health this rule makes sense.

There are many reasons to reduce mercury emissions. It has been documented that eating mercury-tainted fish affects the offspring in humans and wildlife at lower levels than cause effects to the consumer. Mercury contaminated fish eaten by women before or during their pregnancies may produce children suffering from brain damage and learning disabilities. Nationwide an estimated 60, 000 newborns are potentially affected each year, including hundreds of Wisconsin children. Wildlife reproduction and health effects from eating mercury-tainted fish have also been documented; walleye reproduction diminishes due to elevated mercury in their waters.

Economically, families supplement their diet with locally caught fish in order to stretch their food budget. Culturally, native peoples have harvested the bounty of Wisconsin's streams and lakes; relying on fish during certain parts of the year for a large part of their diet. Historically, ethnic populations have relied on locally-caught fish, and now rely on our state's waters to provide them. Ecologically, wildlife locates here due to the abundance of waters and the fish they provide. All of these populations are placed at risk from mercury emissions and cannot or will not choose to reduce fish consumption no

matter how dire the warnings or widely-circulated the advisories. Therefore, the Sierra Club feels that an aggressive timetable and reduction strategy should be pursued. There is strong evidence that cost-effective technologies will be developed to allow emission reductions of 90% within the next ten years or even sooner. Therefore the Sierra Club feels an aggressive schedule culminating in virtual elimination of all mercury emissions from all sources should be mandated in the rule.

Geologically and geographically, a trading or alternative reduction strategy for mercury emissions places greater burdens on some populations by creating toxic hotspots. This is demonstrated by the sensitivity of some waters to increased mercury pollution as seen in the extremely elevated mercury levels in Vilas and Oneida County lakes. Alternatives, other than making actual reductions, would place them at economic and/or ecological disadvantage. Mercury pollution jeopardizes 45,000 resort and tourism related jobs in Wisconsin and $1 billion in annual expenditures by anglers. Therefore, the Sierra Club recommends that all trading or alternative reduction strategies be eliminated from this rule.

Toxic emissions, especially those that persist and bio-accumulate, should be prevented. Fish advisories exist due to the increased levels of mercury that have been emitted from anthropogenic activities. The costs to society, both for those present and for those to come, are too great to ignore. Therefore, it is critical that a rule be put into place to lead the continent in the effort to reduce mercury emissions to a protective level.

We must remember that our responsibilities do not end with the state's borders or this generation. We have a responsibility to neighboring states and countries that we share air and waters with, and to future generations. Therefore, this rule must be considered in the broadest context.

Wisconsin Electric – Kathleen Standen

Wisconsin Electric appreciates the opportunity to participate in the TAG and the CAC, and emphasize the importance of stakeholder input in developing reasonable rules and avoiding subsequent legal disputes. Our main concerns with the CAC were the timing of convening this stakeholder group after proposed rules were released, the focus of its efforts, the CAC schedule relative to the work of the TAG, and the status of the TAG work products.

Convening a stakeholder group after the rules were proposed seemed to encourage defensive posturing and establish a non-productive dynamic among stakeholders. A better alternative is one that the Department has commonly used in the past, where stakeholder groups are established as part of the actual development of the proposed rules. This has many advantages, including a better opportunity to fully explore rule alternatives, along with the ability to fully examine and document technical issues. Next, having the TAG develop its work products simultaneous with the CAC activities was problematic. The CAC had no common foundation for discussing technical aspects of the rule. And finally, the CAC focused nearly exclusively on implementation features of

the rule (e.g., the eight mercury rule issues listed in the Forward to this report), with little emphasis on the ultimate purpose of the rules and tangible ways to accomplish those objectives. Regarding the TAG work products, our review of the TAG technical briefs indicates that there are substantial deficiencies and uncertainties in many of the technical assessments. Because of these, we cannot draw some of the same conclusions about technical issues that are stated in the CAC report.

In addition to our participation in the stakeholder groups, we note our significant investment in the collaborative U.S.DOE mercury controls demonstration project to test carbon injection technology conducted at our Pleasant Prairie Power Plant. We have also done comprehensive emissions stack testing in preparation for designing and implementing controls to meet future mercury regulations. Finally, we have taken a lead role in developing the environmental science of mercury and are collaborating with the Department in expanding knowledge about mercury emissions, transport, deposition and environmental impacts.

In closing, Wisconsin Electric (WE) supports a mandatory program which would require 10 and 40% reductions from utility sources over five and ten years, respectively. Necessary features of this reduction schedule include a multi-emission alternative, elimination of the offset requirement and incorporation of a trading program. The multi-emission alternative would allow a source to opt out of predetermined reduction requirements in exchange for developing and reaching a binding to include, at a minimum, reductions of NOx, SO_2, and mercury. The offset requirement would be replaced with the *already existing* federal case-by-case MACT standard requiring mercury controls for new sources. The trading program would allow off-system trading to meet some portion of reduction requirements.

Along with the basic features of the regulation, there are several underlying implementation issues to be resolved, including establishing an emissions baseline, compliance demonstration methods, streamlined construction permitting, variance provisions to recognize the early status of technology development, comprehensive trading and averaging provisions, and avoidance of penalty for early action relative to pending federal standards.

Wisconsin's Environmental Decade – Marc Looze

Perspective on WUA Mercury Modeling

We concur with the Department's analysis of the "Wisconsin Mercury Deposition Case Study," which was commissioned by Wisconsin Utilities Association and Dairyland Power. In a letter to WUA, the DNR pointed to "**substantial deficiencies** and **uncertainties** in many modeling components in this study." Consequently, the Department could not agree with the conclusions of WUA's study. In fact, a **fundamental flaw** exists in the model used to predict mercury deposition: the model "is not designed to simulate localized impacts of point sources" of mercury. Yet, WUA's study uses this regional-scale model to assess Wisconsin-specific mercury impacts.

Additionally, the authors chose outdated emissions data from 1994-1995, which showed certain mercury emissions to be 300% lower than in 1998-1999.

WUA, in a race to place blame on all other mercury sources except Wisconsin power plants, sent the case study to state legislators and policy makers before the DNR completed their review and before any independent peer-review could occur. It appears the WUA case study is more of a political than a scientific document.

Perspective on Cost of Mercury Reductions

A May 13, 2002 document from the EPA Utility MACT Working Group, which is comprised of diverse stakeholders, analyzed cost estimates for a nationwide reduction of mercury emissions. In one scenario, mercury reductions of 80-95%, depending on the power plant type, would be made at all plants in the United States. The cost estimate for such a nationwide reduction is approximately **$2.7 billion**; the reductions would be achieved prior to 2010.

Most of the utilities in Wisconsin have each anticipated costs of more than $1 billion just for their own plants, which make up a tiny fraction of the nation's electric supply. WE Energies estimates it may cost as much as **$3.3 billion** just for the utility to meet 90% reductions. This seems impossible and will likely prove to be another example of the electric utility industry grossly overestimating the potential costs of pollution reduction projects.

Wisconsin Federation of Cooperatives – David Hoopman

Wisconsin law (§285.27(2) (b), Stats.,) authorizes the Department of Natural Resources to establish emission standards for hazardous air contaminants not covered by section 112 of the federal Clean Air Act, ***if*:**

> "...the department finds the standard is needed to provide adequate protection for public health or welfare."

The need for N.R.446 to protect public health has been asserted countless times by proponents of the rule, but the assertion has never been backed up by anything other than more assertions. It is not borne out by case studies, of which we have been presented with exactly one, dubious and involving a grand total of three Wisconsin residents. It is not borne out by any record of mercury toxicity cases reported or treated in this state, because no such records are collected. It is not borne out by the actions of state officials with direct and primary responsibility for public health in Wisconsin, as the official state public health plan for the coming decade does not mention mercury.

In stark contrast with the assertions freely made and repeated by the media, the actual data we have placed before the Department and its advisory committees tend to allay fears of a public health threat. The two largest studies of human populations show, respectively, no effect and an uncertain effect from heavy dietary mercury exposure. A Wisconsin wildlife study, with the Department as a participant, has shown no effect.

Thus the justification for this extraordinarily expensive rule appears to rest on things typified by the performance of a rule proponent who appeared at a Rhinelander public hearing in October 2001. Prior to the hearing he told reporters that because there is a mercury-related fish advisory on every lake in Wisconsin, "It's time we got started cleaning up our lakes." After the reporters left, he gave public testimony expressing anger over criticism that N.R.446 wouldn't result in fish advisories being lifted, because "no one has ever suggested otherwise."

We asked the Department in the fall of 2001 to estimate the effect of 100-percent success in implementing N.R.446. The invitation remains open.

Wisconsin Manufacturers and Commerce – Jeff Schoepke

In October 2001, WMC provided the DNR detailed comments on this proposed rule. Similar comments, focusing on the impact of the rule on electric reliability, were provided to the PSC in August 2001. This summary includes some of the major concerns expressed in those documents, but readers are encouraged to review the detailed comments to fully understand the depth and breadth of WMC's concerns with this rule. In particular, this summary does not develop WMC's concerns about the real impacts the rule would have on the environment or the impact on electric reliability or rates.

1. **The Proposed Mercury Rule is on a Collision Course with Wisconsin Statutory Directive regarding Federal Programs**

As the DNR assembles its mercury rule package, it must first ask itself the primary question of legislative directive and statutory authority. State law, SS.285.27(2)(a) prescribes the fundamental test for any air toxics regulation – such regulation must be "similar" and "may not be more restrictive in terms of emission limitations than the federal standard." DNR's proposed mercury rule is on a collision course with this state law. For example, an underlying compliance precept of the proposed rule is the trading of mercury emission reductions. In contrast, section 112 of the clean air act prohibits trading. Other provisions will inevitably be inconsistent. Thus, we know now that DNR rule will not be "similar" to the pending federal rules. In addition, major source caps are inconsistent and often more "restrictive" than emission rates, which will be the approach taken by EPA in its pending MACT standards.

Beyond issues of inconsistencies, DNR has not shown a need for this rule in light of the pending federal programs. In fact, because most mercury comes from out of state, DNR has always agreed with us that the real solution is a federal program. On this point, WMC is aware of no sources listed in the proposed rule that are not subject to existing or will be subject to proposed federal mercury regulations.

Because of the inevitable inconsistencies between the federal and state programs, the regional nature of mercury emissions, and the likelihood federal rules will better address the mercury problem, WMC believes the state rule must be indefinitely postponed until the federal programs are in place.

2. The Major Source Cap is an Unjustified Burden

If a rule is to move forward, at a minimum the major source cap must be eliminated. The cap is in effect a cap on the productive capacity of some industrial boilers. Further, the 10-pound threshold is arbitrary, provides little environmental benefit and should be applied on a unit basis not a facility-wide basis.

WMC is interested in exploring the option developed by the CAC to replace the major source cap with energy efficiency agreements between the DNR and companies. However, more detail is needed before we can sign onto such a concept.

3. Proposed Utility Reduction amounts and Schedules are Unreasonable

Utility reductions should be reasonable and implementable. The proposed rule is not. Reductions should not be more than is expected of utilities in other states, as resulting higher electric rates will put Wisconsin companies at a competitive disadvantage. While we have significant concerns about the electric rate impacts of the proposal by the Wisconsin Utility Association calling for 10% and 40% reductions, this appears to be a much more reasonable approach.

Wisconsin Paper Council – Ed Wilusz

We are responding to your request for a short final comment on the proposed NR 446. We will not restate our position on the need for the rule or the various technical and policy issues reviewed by the CAC. Our position on these issues is adequately reflected at various points in the report and in our public comments on the proposed rule. However, we would like to address the CAC process and some of the concepts that came out of this process.

The technical and policy issues surrounding the regulation of mercury air emissions are many, extremely complex, and in some cases, unanswerable. The CAC, even with support of the TAG, was only able to scratch the surface of these issues. It is not surprising that there was disagreement among stakeholders on every substantive issue. There was neither the time nor the resources to examine most issues in the depth necessary to foster consensus. As a result, the final report provides little more than an inventory of stakeholder perspectives.

Despite the obstacles, the following interesting concepts emerged from the process:

- Taking a solid first step toward mercury reductions at major utilities, without worrying about what subsequent steps would be. This holds the potential for cost-effective actions to reduce mercury emissions that would not have a significant impact on ratepayers.

- Industrial and small utility sources possibly pursuing voluntary energy efficiency projects in lieu of emission limitations under NR 446. The paper

industry has agreed to further discuss this option with the department and explore how or even if such a program could work.

While there was not agreement on these concepts, it may be possible, through additional work, to develop them into an overall mercury strategy that is acceptable.

Wisconsin Utilities Association, Inc. – Bill Skewes

On behalf of Wisconsin's investor-owned utilities, the Wisconsin Utilities Association (WUA) appreciates this final opportunity to comment on proposed NR 446 and the process that led to its development.

WUA has been extensively involved in the issue of mercury regulation, whether by legislative or administrative rulemaking at the state level. WUA's position on this issue has evolved significantly since May of 2000, when a bill requiring mercury emission reductions of up to 90% - which WUA opposed - was defeated in the Legislature's Joint Finance Committee.

Environmental groups petitioned the DNR in the summer of 2000 for mercury rules. WUA and Dairyland (DPC), seeking to work pro-actively and cooperatively with the Department, offered a plan to reduce mercury emissions by 10 and 40% over five and ten years, respectively, at the December 6, 2000 DNR Board meeting.

Perceived environmental benefits notwithstanding, this proposal represented and continues to represent the industry's best attempt to significantly reduce emissions while not threatening electric reliability, unduly burdening ratepayers, jeopardizing Wisconsin's economic development or conflicting with pending federal mercury rules.

Despite this understanding, the Department released its draft rules in the spring of 2001, which require, among other things, emission reductions of 30-50-90% in 15 years, emission offset ratios of 1.5:1 and caps on industrial sources. Essentially, the draft rules appear to have been written directly from the environmentalists'/citizen petition that originally sought the rulemaking in the summer of 2000.

Thus, the WUA/DPC proposal was never given serious consideration and became the "floor" rather than the "ceiling" for discussion. Numerous opportunities have been presented to the utilities and other stakeholders to comment on the rules, and WUA or its members have participated constructively in all of them.

It is WUA's sincere hope that the rules will be redrafted to include the critical elements of the WUA/DPC offer, i.e. emission reductions of 10 and 40% over five and 10 years, no offsets, reasonable variance procedures, etc., as a realistic middle ground between current law and the changes sought by the original petition.